Case Study

Teaching Information Literacy Skills: A case study of the QU-core program in Qatar University

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Abstract
Purpose: The study examines students' assessment of a general requirement course entitled "Basics of Information Technology".
Methodology: A written survey was distributed to 80 students in 3 different classes. 61 surveys (76% of the total) were returned within the study period.
Results: Respondents stated that knowledge and skills acquired are essential to pursue their studies in the university and beyond. Using search engines and searching databases were identified as the most important skills acquired. Discrepancy in course description, delivery methods and assessment tools were seen as the main obstacles.
Practical implications: The study provides ideas, concepts and guidelines for introducing a new information skills course within Qatar University Core Curriculum.

Keywords:
Information Literacy, Higher Education, Core Curriculum.

Introduction:

The volume of information and the complexity of the available information are increasing significantly. Acquiring the basic knowledge and skills to deal effectively with this information, whether in traditional or electronic form, is very crucial to all people in today's world. Needless to say, institutions of higher education have a great role to play in the provision of information skills through various methods including information related courses such as: information literacy, information skills or information fluency.

Information literacy has been defined in numerous ways in the literature, however it is generally understood to include: the knowledge of information sources in one's subject area, the ability to construct effective search strategies, the ability to critically appraise information sources and the ability to use these sources appropriately.

Established in 1973, Qatar University, hence forth QU, is the only governmental institution of higher education in the State of Qatar. At present, QU comprises six colleges: College of Arts and Sciences, College of Education, College of Engineering, College of Business, College of Law and

College of Islamic Studies. The total number of students enrolled in a QU is approx. 10.000, about 70% of which are females.

In the academic year 2003/2004 QU has started an aggressive reform project. This reform effort was concerned primarily with improved high-level management processes and broad-based performance enhancements for the University.

QU Core Curriculum: Brief Historical Background

From the early beginning of the reform project it was acknowledged clearly that there is a need to establish a common core curriculum that will equip its graduates with the skills necessary for successful careers and good citizenship in a changing and unpredictable world. As stated in the Reform Report:

"A major component of the vision for Qatar University is the production of graduates who are well-rounded, flexible, capable of adapting to changing economic and social conditions, and motivated to pursue lifelong learning. QU graduates are expected to be leaders of and contributors to the economic, social, and political life of Qatar."(Qatar University, 2004)

The University has gone a step further to design and deliver the core curriculum by revising its academic structure. A new College of Arts and Sciences has been established merging the two colleges of Humanities and Sciences. This new college will offer degree programs in humanities, social sciences, and the physical sciences. Importantly, it will also coordinate efforts of all colleges to develop and to deliver the core curriculum which is considered as the cornerstone of the reform effort.

Since 2003, QU has been offering a General Requirements Program made up of 34 credit hours covering a wide variety of topics. Basics of IT 0-1012100, is a compulsory course which aims at equipping the students with the IT skills necessary to pursue their undergraduate studies regardless of their specialty.

After two years of delivering the General Requirements Program and in the light of the reform effort mentioned earlier, a new Core Curriculum Committee (CCC) has been established to review the existing program and to propose a new Core Curriculum, QU-Core, that corresponds to the real needs of QU as well as its mission and vision set in the reform document.

The committee has started to re-examine all components of the program including its objectives, learning outcomes, courses offered, method of delivery and assessment tools. The IT course has been subject to complete revision resulting in proposing a new course entitled "Information and Research Skills" to be delivered in the spring of 2007.

QUCore Objectives:

The QU-Core objectives were developed by the Core Curriculum Committee members and other partners including faculty representing all colleges,

academic departments and programs. Among the 16 objectives identified, 3 objectives were focusing mainly on information and research skills:

1. Endowing students with the basics of information technology skills.
2. Promoting students' information skills.
3. Furnishing students with the basics of research skills from an interdisciplinary perspective. (Qatar University, 2005)

Aim and Purpose:
The aim of this study is to assess the "Basics of Information Technology", a 2 credit hours course which aims at equipping the students with information skills and competencies necessary to pursue their studies in the university. The course is currently offered under the umbrella of the general requirement program started in the fall of 2004.

Results of this assessment will be used to help in designing a model for the new course entitled" Information and Research Skills". This course will be offered within the new QU-Core mentioned earlier. The purpose of this study is to answer the following questions:

- How do the QU students assess the IT course in general?
- To what extent did the current course contribute towards enhancing QU students IT knowledge and skill?
- What are the most important skills offered through the existing course?
- What are the most preferred skills to be acquired from the students' perspective?
- How can the existing course be modified to meet the real requirements of the new QU Core?

Methodology:
A quantitative method was used for the purpose of this study. A survey instrument was developed in the form of a questionnaire. The questionnaire included closed ended type questions aiming at gathering information relevant to the following aspects:

- Student data (Area of study- Total credits hours acquired so far)
- Level of IT competency (Computer skills- Internet use)
- Students' general opinion regarding the IT course (course title- appropriateness of assigned credit hours- Lack of practice hours- contribution of the course in developing students skills)
- Level of skills acquired by the IT course
- Preferred skills to be included in the new course from the students perspective

In addition to the closed ended questions, an open ended type question was introduced giving the respondents a chance to express their opinions freely as well as making recommendations and suggestions.

The number of students registered in the classes reached 80 students, 30 students in the first class and 25 students in each of the two other classes.

Consequently, a total of 80 questionnaires were distributed among 3 classes of students who have just completed the IT course. These classes were selected purposely as students were taught by 3 different faculty members delivering a different syllabus. 61 questionnaires were returned, making the response rate relatively high (approx. 76%).

In addition to the questionnaire, a set of interviews were held with three of the faculty responsible of delivering the IT course. These interviews did help in gathering data concerning the problems and obstacles faced by the faculty during their teaching experience with the course. The interviews focused primarily on the following aspects:

- Course description
- Course objectives
- Learning outcomes
- Methods of delivery
- Assessment tools

Information Literacy: Concepts and Current Trends:

Owusu-Ansah (2005) points out that the term information literacy was first used by Paul Zurkowski, president of the Information Industry Association in 1974. Zurkowski described the information literate individuals as people trained in the application of information resources to their work. During the 1980s, the term gradually started to replace the concepts of user education and library skills.

Although various definitions for information literacy have been developed by educational institutions, professional organizations and individuals, most of these definitions did stem from the definition offered in the Final Report of the American Library Association (ALA) Presidential Committee on Information Literacy, "To be information literate, a person must be able to recognize when information is needed and have the ability to locate, evaluate and use effectively the needed information"(ALA,1989). Since information may be presented in a number of formats, the term information applies to more than just the printed word. Other literacies such as visual, media, computer, network, and basic literacies are implicit in information literacy.

In his comprehensive paper “Information and digital literacies: a review of concepts”, Bawden identifies various terms related to information literacy which have been in the literature. These include:

- Information literacy
- Computer literacy
- Information technology
- Library literacy
- Media literacy
- Network literacy
- Digital literacy

In 1999, the National Research Council in the US has issued a report that noted several distinctions useful in understanding the relationships between three interrelated terminologies; information literacy, computer literacy and the

broader technological competence. The report points out that computer literacy" is concerned with rote learning of specific hardware and software applications, while "fluency with technology" focuses on understanding the underlying concepts of technology and applying problem-solving and critical thinking to using technology. Comparing information technology fluency with information literacy as agreed upon in higher education, the report states that information literacy's focus on content, communication, analysis, information searching, and evaluation; whereas information technology "fluency" focuses on a deep understanding of technology and graduated, increasingly skilled use of it. (National Research Council, 1999)

Information Literacy in Higher Education:
Several universities and institutions of higher education have realized the importance of information literacy as a key outcome for college students. Breivik (1998) points out that in this next century, an "educated" graduate will no longer be defined as one who has absorbed a certain body of factual information, but as one who knows how to find, evaluate, and apply needed information". Our ability to be information literate depends on our willingness to be lifelong learners as we are challenged to master new technologies that will forever alter the landscape of information.

Because information literacy augments students' competency with evaluating, managing, and using information, it is now considered by several regional and discipline-based accreditation associations as a vital competency for all university students. It could be easily said that the inclusion of information competencies as a graduation requirement is the key that will fully integrate information literacy into the curricula of academic institutions.

Although there is a wide consensus concerning the competencies that should be included in any Information literacy course, differences between institutions of higher educations should be well taken into consideration when designing such a course. These differences are primarily associated with the mission and student body. Information Literacy programs should be designed to meet specific needs rather than a prescribed set of criteria. (Breivik, 1998)

The same concept was emphasized by Grassian and Kaplowitz (2001) as they noted that implementation of a particular approach or program depends on many institutional and situational factors such as audience, purpose, budget, staffing, facilities, and time.

Information literacy was strongly emphasized as a main theme in higher education with the publication of "***Information Literacy Competency Standards for Higher Education*** **"**by the Association of College and Research libraries (ACRL) in 1999. These standards are considered the most acceptable standards for to measure information competencies in institutions of higher education world wide. The standards were then approved by the American Association for Higher Education in 1999 and the Council of Independent Colleges in 2004.

Previous research:
Although the literature about IL is proliferating, studies dealing with IL in higher education in the Arab world are rather scarce. Numerous studies have concentrated on the concepts and definitions associated with information literacy. Works by Sandy Campbell (2004) and Owusu-Ansah (2005) are good examples of this category.

As regards to providing models for IL programs or courses, Loo and Chung (2006) of Tuen Mun University in Hong Kong have reported a model for information literacy course development, one derived from a liberal arts university perspective.

Sharkey (2006) examined information literacy, critical thinking, and computer literacy in higher education and discussed the application of the information fluency model, created by the Associated Colleges of the South, to the Purdue University Libraries one-credit information literacy course, GS 175 Information Strategies.

Other studies did focus on IL in specific disciplines, Haines and Harrocks (2006) provided a descriptive paper describing a three part model of good practice for promoting health information literacy: through training delivered as part of the taught undergraduate and postgraduate curriculum; through the iGrad program aimed at research students; and through work with the Personnel department, developing staff knowledge and information competencies via TrainIT, a suite of IT and information retrieval courses.

In a study on information literacy for arts students, Ellis and Sallisbury (2003) report on an evaluation project conducted at the University of Melbourne during 2002. The objective of the project was to evaluate selected information literacy programs that were provided to students in the Arts Faculty.

Discussion:
In the following paragraphs an analysis of the questionnaire results will be presented. This analysis covers the main aspects dealt with in the questionnaire as indicated earlier in the study.

Students: Back ground information:
In the first part of the questionnaire students were requested to submit information concerning their specialties as well as the number of their acquired credit hours. Table (1) illustrates the distribution of students over various disciplines. As shown in the table, a total of 61 students attended the 3 classes representing 14 different disciplines. It is worth mentioning in this context that registration in this course is open to any QU student regardless of his/her specialty.

Variations in Course Syllabus:
Although the course has a set of objectives and learning outcomes, instructors of the various course groups have adopted different course syllabus reflecting their expertise and background. There was, however, an agreement on some topics as they represent the core of the course. Table (2)

illustrates how different course components were distributed among the three groups examined.

Table (1) Distribution of students on various disciplines

Discipline	Number of students
Sociology	9
History	8
Islamic Studies	7
Geography	6
Computer Science	5
Arabic Studies	5
English Literature	5
Biology	4
Information Science	4
Physical Education	4
Fine Arts	4
Law	3
Economics	3
Mass Communication	2
International Affairs	2

Analysis of course components of the three groups reveals that some topics have been emphasized by all instructors indicating the importance of these topics to the students. Computers (H/W, S/W etc.), networks and the internet represent good example of this category. The second category includes topics that were covered by most of the faculty such as: formulating search strategies, use of Internet search engines, electronic information resources and searching library OPACs.

The least covered topics in the course were electronic government, expert systems, news groups as well as citing electronic resources.

There was a clear discrepancy among the groups concerning the depth of treatment of each component. Students of the third group were exposed to a detailed coverage of computers, their evolution, hardware and software issues, operating systems and computer applications. On the other hand, more emphasis was put on information retrieval systems and bibliographic databases in the first group.

Methods of delivery and assessment tools were inconsistent among the three groups. However, Assignments, class participation, midterm exams as well as final exams were recognized as primary assessment tools.

Table (2) Topics covered by various course groups

Topics	Group 1	Group 2	Group 3
Computers	✓	✓	✓
Digital libraries		✓	
Electronic information recourses	✓	✓	
Searching library OPACs	✓		
Searching bibliographic databases	✓	✓	
Information retrieval systems	✓		
Networks	✓	✓	✓
Internet (Accessibility-Services)	✓	✓	✓
Search engines	✓	✓	✓
Subject directories/Portals	✓		
Formulating search strategies	✓		
Citing electronic recourses	✓		
Expert systems & artificial intelligence		✓	
Electronic commerce		✓	✓
Electronic government		✓	✓
E-learning		✓	
Electronic publishing		✓	
Internet Ethics	✓		

Students' General Opinion about the Course:

Table (3) illustrates students views regarding different aspects related to the current IT Basics course. Most of the students did agree that the course title reflects its contents. Although the course covered a wide spectrum of information literacy related issues, it was seen by the students as being an IT course. This is considered a clear proof of the overlap between information skills and IT, at least form the students perspective.

The vast majority of the students, 90%, reported that they were not exposed to the topics covered by the course previously. Moreover, students indicated that they lacked the skills necessary to conduct assignments and research papers during their high school as well as after joining the university. The majority of respondents valued the skills introduced within the course, 77% of the respondents believe that these skills should have been acquired in the school or, alternatively, at a very early stage of the university.

Table (3) General opinion about the IT Basics course

Opinion	Strongly agree	Agree	Disagree
Course title clearly reflects its contents	11	41	9
Course credit hours are suitable for the contents	8	34	16
Practical hours are needed to support the course	34	17	10
Course enhanced knowledge and skills in IT	17	32	8

This issue has to be dealt with great care when determining the offering time of the new course within the core curriculum. Hence, offering the new IL course in the students' first academic year is highly recommended.

Asked about the suitability of the course credit hours to its content, many students did agree that the 2 credit hours were quite appropriate. However, when students were requested to evaluate the distribution of those hours, it was obvious that students are not satisfied with the lack of assigned practical hours. More than 52% of the respondents expressed the need for practical hours to support the course. This problem has to be dealt with when designing the new course. Two hours of practical sessions are recommended to complement the theoretical part.

IL Vs IT:

Table (4) shows that almost 90% of the respondents don't consider the IT course as a repetition to any other computer and/or IT related courses previously studied.

Table (4) Previous courses in IT

Skill	Yes	No
Previous courses in computers/IT	19	40
Similarity with other courses	6	53

Nevertheless, the students' main concern was the part of the course dealing with computers' basics. As mentioned earlier in the study, all QU students have to sit for the foundation Program which aims at enhancing the students' skills in three main areas: IT, English and mathematics. This factor has to be taken into account when designing the new course on IL.

In fact, the new IL course should have a different identity that does not replicate the IT course offered within the Foundation Program. The distinction between IL on one hand and IT on the other has been highlighted in the literature.

Although closely related, Information literacy and information technology have different meanings. While the former has broader implications for the

individual, the educational system, and for society, information technology skills enable an individual to use computers, software applications, databases, and other technologies to achieve a wide variety of academic, work-related, and personal goals. Information literate individuals necessarily develop some technology skills. (ACRL, 2000)

The difference between information literacy and computer literacy was also tackled by Gilton (1994). She points out that Information literacy is not the same as computer literacy (which requires a technological know-how to manipulate computer hardware and software) although there is a strong relationship between the two concepts. Each of these literacies requires some level of critical thinking. But compared with computer literacy, information literacy goes beyond merely having access to and knowledge of how to use the technology, because technology alone does not guarantee quality learning experiences.

Information literacy requires an awareness of the way in which information systems work, of the dynamic link between a particular information need and the sources and channels required to satisfy that need (Darch, 1997).

The US National Research Council (1999) defines Information literacy as an intellectual framework for understanding, finding, evaluating, and using information--activities which may be accomplished in part by fluency with information technology, in part by sound investigative methods, but most important, through critical judgment and reasoning. Information literacy initiates, sustains, and extends lifelong learning through abilities which may use technologies but are ultimately independent of them.

Impact of IL on students' performance:
Concerning the role of the course in enhancing the students' IT knowledge and skills, the vast majority of the students indicated that the course had a contribution in this respect.

Students were asked about how the course will affect their performance during their study at the university and beyond. 85% of the respondents believe that the skills acquired by the course will contribute positively to their study skills during their time in the university. Conducting research papers and assignments are identified by the students as the areas where the course has a great impact.

About 74% of the students considered the skills acquired by the course as very valuable to their careers in general. Acquiring information for personal use as well as assisting them to define their information needs for postgraduate studies was also identified. Another 60% believed that the skills will have an impact in their work places after graduation.

Competency in dealing with computers & Internet:
Students were asked to rate their expertise in dealing with computers and using the internet. As shown in table (5) nearly half of the students (49%) did consider themselves as advanced users of the internet.

Table (5) Competency in dealing with computers & Internet

Skill	Advanced	Average	Novice
Dealing with computers	**27**	**32**	**3**
Dealing with the Internet	**27**	**22**	**7**

The fact that students ranked the internet, search engines, directories, portals and other internet related topics among the most useful topics covered in the course, indicates that students were exposed to a variety of new topics and acquired new skills in dealing with the internet especially those related to searching for and finding information on the internet.

Opinion regarding the most acquired knowledge and skills:
Students were requested to express their opinion regarding the knowledge and skills acquired by various syllabi offered. The questionnaire included a list of the topics covered in the 3 groups selected, and students were to rank them under four different categories: high, average, low and not covered in the course.

As illustrated in table (6), the Internet, with related aspects, is ranked first among all other topics. More than half (52%) of the students reported that they did benefit from this topic very highly. Other Internet related topics such as e-mail, use of search engines and electronic information recourses (e-books and e-journals) are seen as equally valuable.

Searching bibliographic databases and formulating search strategies are ranked highly by the students too. This underlines a wide consensus among the students that these skills are very crucial to them to pursue their study in their respective programs.

Skills identified by the students as being very essential do conform to ACRL information literacy standards. It was stated that information literate students should be able to accesses needed information effectively and efficiently.

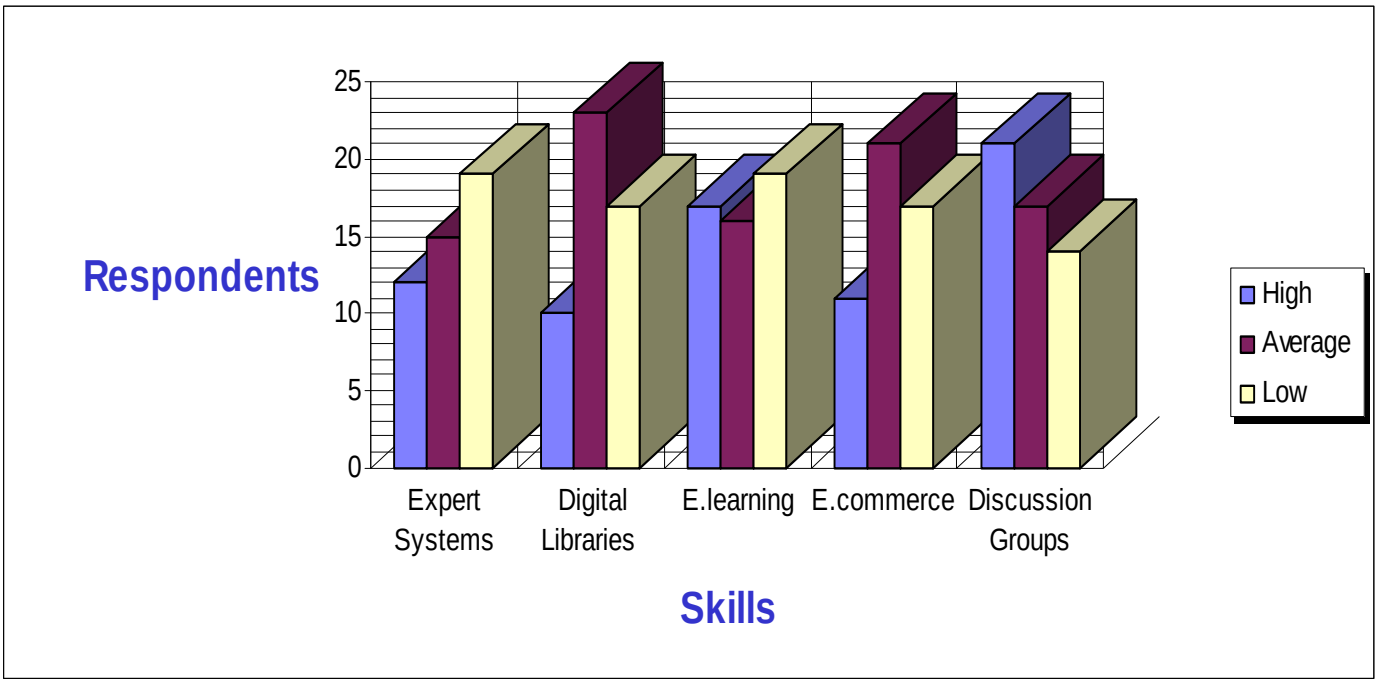
Concerning topics that had the least impact on students, figure (1), digital libraries, e.learning, discussion groups, news groups and electronic libraries were identified. It should be noticed that although digital libraries and electronic information resources are very closely linked respondents ranked them differently. This could be attributed, however, to the fact that students' focus was on topics relevant to developing their information literacy skills rather than topics providing them with conceptual and/or theoretical foundations.

The skills valued by the students in the existing course, together with those proposed in the following section, should be taken into considerations when designing the new course syllabus.

Table (6) Ranking of knowledge and skills covered by the IT course

Knowledge/Skill	High	Average	Low	Not dealt with
Computers (H/W & S/W)	19	23	14	4
Digital libraries	10	23	17	11
Electronic information recourses	26	23	6	6
Searching library OPACs	15	24	13	9
Searching bibliographic databases	24	22	13	2
Information retrieval systems	22	24	12	3
Networks (LANs –MANs-WANs)	21	28	10	2
Internet (Accessibility-Services)	34	19	5	3
E-mail	30	19	9	3
Discussion groups	21	17	14	9
News Groups	24	12	13	12
Search engines	27	19	8	7
Subject directories/Portals	21	18	13	9
Formulating search strategies	24	23	9	5
Citing electronic recourses	11	28	11	11
Expert systems & artificial intelligence	12	15	19	15
Electronic commerce	11	21	17	12
Electronic government	14	19	14	14
E-learning	17	16	19	9
Electronic publishing	22	18	12	9
Internet Ethics	26	16	13	6

Figure (1) Least acquired skills by existing IT course



The most important skills to be acquired:
When asked to select the most important topics to be included in the proposed Information skills course, students expressed a genuine interest in topics dealing with the internet and all relevant aspects. As illustrated in table (7), the internet ranked first scoring slightly over 65%, electronic information resources also got a very high rank with 57%. However, it seems that the respondents were not very keen to learn about some crucial issues related to electronic resources such as citing and evaluating these resources. These issues are considered of great value for any user of E.resources.

Finding information on the Internet was a favorable topic among the majority of the students. Formulating search strategies to retrieve relevant information as well as using search engines with their related features, most importantly using advance search capabilities, were seen as very important skills by over 50% of the respondents.

Table (7) The Most Important types of knowledge and skills

Knowledge/Skill	Very important	Important	Not important
Identification of research problem	26	25	10
Identification of available recourses	28	27	6
Selection of appropriate recourses	32	24	5
Printed information recourses	27	24	10
Electronic information recourses	35	19	7
Citing electronic recourses	22	26	11
Evaluation of electronic recourses	16	33	12
Searching library OPACs	27	23	11
Online search in databases	31	18	3
Internet (introduction- components)	40	13	7
Using search engines	35	11	4
Subject directories/Portals	24	29	8
Formulating search strategies	36	19	5
Using advanced search	36	19	6
E-mail	39	18	4
Using word processors	26	25	10
Using power point presentations	23	23	15
Web publishing	18	12	6
Electronic commerce	26	28	7
Electronic government	26	25	11
E-learning	31	25	5
Electronic publishing	32	25	4

Problems with the existing course:
Open ended question concerning course obstacles as seen by students as well as interviews conducted with faculty revealed the following:

- No standardized course description is followed resulting in a wide inconsistency in terms of the course contents, methods of delivery and assessment.
- Overlap with the IT course offered within the Foundation Program.
- Large number of students does lack the basic IT skills that enable them to cope with the course content. This is due to the fact that these students do come from the literary stream in the secondary school system.
- Lack of English proficiency does hinder getting the full advantage of the course, considering the fact that many English terms are used through out the course.
- The difference between students as regards to their competency in dealing with computers and the Internet is a big obstacle that encounters teaching faculty.
- Course assigned credit hours are not adequate to cover all topics
- Lack of practice hours
- A noticeable discrepancy in course description
- The focus on IT skills versus Information skills per say.

Information Literacy in QU-Core:
In the light of QU-Core objectives relevant to IL outlined in the introduction of this study, the need to introduce a course on information literacy seems inevitable. In doing so, QU will be no exception among different world universities which recognized the importance of offering such a course. It is worth mentioning in this context that QU has chosen to adopt one common approach to develop its students' information skills.

Information literacy instruction in higher education can take a variety of forms. In their survey for various approaches taken by universities to deliver information competencies to their students, Kasowitz-Scheer and Pasqualoni (2002) observed the following methods: Online information literacy instruction, the information literacy course and information literacy across the curriculum

1. Online Information Literacy Instruction

This approach is mainly adopted by academic and university libraries. Web-based guides as well as online tutorials are widely used as methods of instruction. These programs are designed to introduce students to general information literacy concepts and information resources. (Donaldson, 2000).

2. The Information Literacy Course

Other institutions of higher education do offer formal information literacy courses. These courses range from for-credit to non-credit, from required to elective, and from distance to face-to-face. They can involve integration with a core curriculum, specific discipline or course, or general information skills

(Donnelly, 1998). Frantz points out that these courses have gained popularity because they offer opportunities for in-depth instruction and reinforcement of research skills through course activities (Frantz, 2002).

3. Information Literacy across the Curriculum

Some schools go beyond the stand-alone information literacy course by integrating Information Literacy into the overall curriculum. An across-the-curriculum approach is favored because it ties information literacy into all students' experiences (Orr and Wallin, 2001). This model requires collaboration among the library, other academic departments, and administration to meet the common goal of teaching information literacy skills. This approach requires academic library programs aiming to prepare faculty to facilitate their students' mastery of information literacy skills so that the faculty can in turn provide information literacy learning experiences for the students enrolled in their classes.

In an attempt to conform to QU vision to add information competence as a graduation requirement for students, it was decided to integrate the Information Literacy course with the core curriculum as in the model mentioned above. The new course entitled "Information and Research Skills" will be offered as a compulsory course to all university students regardless of their subject specialty.

The decision to select this approach was based on many factors among which is the thorough study of students' intake to the university as regards to their knowledge and skills in information gathering, use and dissemination. Moreover, acquiring information skills was seen as a major objective of the Core Curriculum.

It is worth mentioning that by adopting this approach, QU is following the steps of some other institutions of higher education. The University of Maryland University College offers a required online course, "Information Literacy and Research Methods," in which students research a particular topic and participate in electronic discussions on timely research issues (Read, 2002).

Factors affecting the design of the course:
This course is intended to be delivered to all first junior students in QU regardless of their specialty. Although there is a wide agreement on the basic skills and competencies that are needed to students in higher education, it has to be noted that the course has to tailor made to meet the equipments of the Qatari students.

- The proposed course should consider QU vision and mission as mentioned earlier in the study.
- The proposed course has to align it self with the general objectives and learning outcomes of QU-Core.
- The proposed course should consider QU student intake in terms of skills and competencies acquired through their k-12 education. It is of

great importance to consider the big difference between these students and their counterparts in other parts of the world.

- The course should align itself with international IL standards. ACRL IL standards could provide good foundation for this purpose.
- The design of the new course should benefit from the findings of this study as they do represent QU student' opinions and attitudes towards IL.
- Information skills and competencies should be emphasized in all programs of study within QU.
- The course should be offered within the students' first academic year in the university.
- Continuous revision and updating of the course components are required to reflect the developments in the field.

The proposed Research and Information Skills Course:

Considering the objectives of the QU-Core as well as results derived form the students' survey, a model of the course syllabi is offered in the following paragraphs.

This course will offer an overview of information resources and the skills required to use them effectively. It will be designed to instill awareness in students regarding the importance of information, the information system infrastructure, information seeking behavior, needs assessment, various information resources and searching and retrieving information at academic level. It has been mentioned earlier that the ACRL will form a god foundation for the design of this course.

Rationale:

- Information is developing at a very fast phase and is becoming technologically complicated that it is necessary for students to be able to search information selectively by applying effective information searching techniques.
- Information recourses are numerous and varied that a student has to be aware of their existences and how to access them effectively
- There is a wide consensus that practicing effective information searching techniques and strategies is among the skills to be acquired by students in higher education at the present time.

Aim:

The course aims at enabling students to be aware of the importance of information, various information resources, to possess the information searching skills and to enable them to access information satisfactorily.

Objectives:

Upon successful completion of the course, students should be able to:

- Understand the information seeking process and its role in research
- Identify information needs and how to assess them
- Develop and conduct search strategies to locate information effectively
- Identify various information sources both in traditional and electronic formats

- Evaluate retrieved information
- Organize, synthesize and share information

Course Design:
The ACRL standards outlined the main information skills that college and university students should acquire to enable them pursue their studies. The standards are:

1. The information literate student determines the nature and extent of the information needed.
2. The information literate student accesses needed information effectively and efficiently.
3. The information literate student evaluates information and its sources critically and incorporates selected information into his or her knowledge base and value system.
4. The information literate student, individually or as a member of a group, uses information effectively to accomplish a specific purpose.
5. The information literate student understands many of the economic, legal, and social issues surrounding the use of information and accesses and uses information ethically and legally. (ACRL,2000)

For each of the above mentioned standards a set of performance indicators where identified for the purpose of assessment. Outcomes associated with each indicator were also set.

Course Components:
In light of the ACRL standards mentioned above, QU Core objectives and results emerging from the students' survey, suggested topics to be included in the IL course could be outlined as follows:

- **Definition of the task**
  - problem definition
  - Identification of information needed
- **Strategies of information seeking**
  - Determination of possible information resources
  - Selection of best resources
- **Locating and accessing information**
  - Online Public Access catalogs (OPACS)
  - Online bibliographic databases
  - Searchable indices and abstracts
  - Web search engines (simple & meta search engines)
  - Developing search strategies
  - Advanced search strategies
- **Types of Information resources**
  - Printed information sources
  - Electronic information sources
  - Full text databases
  - Internet information sources
- **Evaluation of information sources**

- Evaluation criteria for printed sources
- Evaluating electronic information sources

o **Use and synthesis of information**
- Extracting relevant information
- Organization and presentation of resulted information
- Communication distribution of information

Methods of instruction & Assessment:
Methods of instruction will include, but not limited to, the following: Lecture, discussion, demonstrations, reading, group work, and hands-on-experience. Assessment tools are to be selected carefully to reflect the realization of the learning outcomes of both the course as well as the Core Curriculum.

In conclusion, this study has provided an invaluable insight into the current status of the Information literacy skills and needs of QU students. The results of this study should be utilized in providing guidelines for designing the new Information Skills course. It is recommended, however, that further studies should be undertaken to assess the impact of the new course on students' information skills.

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